Automation of Surgical Tasks

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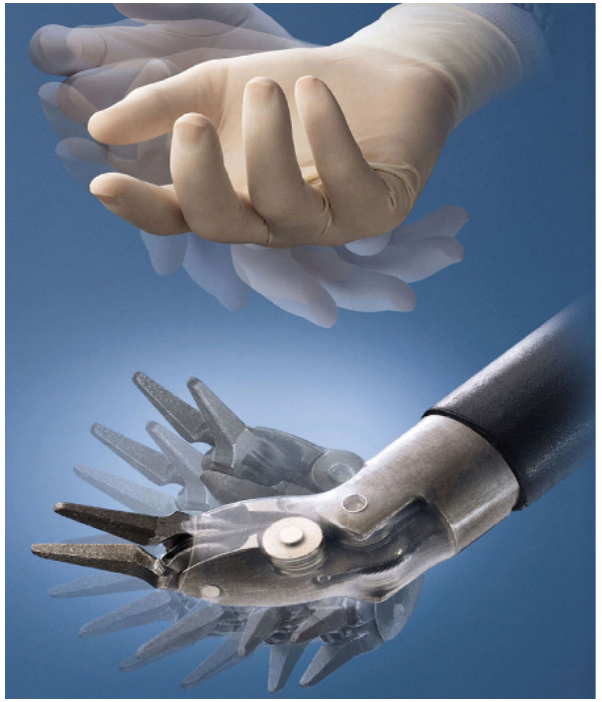

Source: Intuitive Surgical

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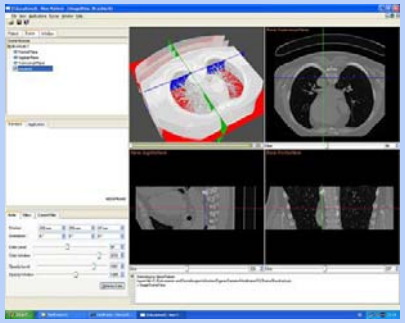
CSE

- Institute of Computer Science and Engineering
  Chair Prof. Dillmann (30 Researchers, 4 Admin Staff)

- Research Areas:
  - Humanoid Robots
  - Adaptive Systems
  - Mobile Platforms
  - Augmented Reality
  - Walking Machines
  - Diagnosis and Inspection
  - Interactive Learning
  - Medical Modeling and Simulation



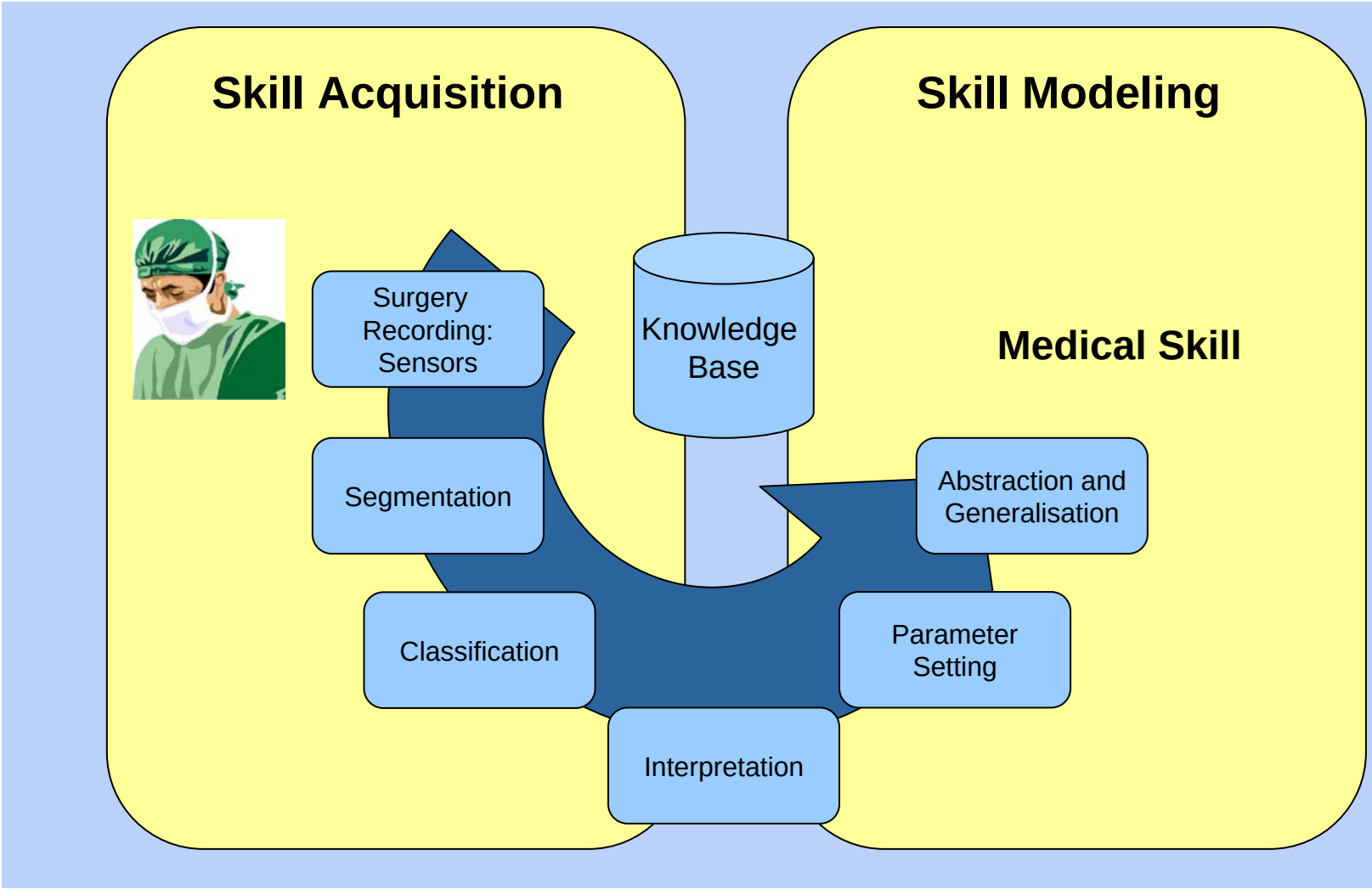
Research Training Group: Intelligent Surgery

- Cooperation between the University of Heidelberg, University of Karlsruhe and German Cancer Research Center (DKFZ)

- Development of new computer-based methods for the future workplace in visceral surgery

- Projects:
  - Perioperative Data Managment
  - Planning of Surgical Interventions
  - Navigation
  - Telemanipulation
  - Man-Machine-Interface

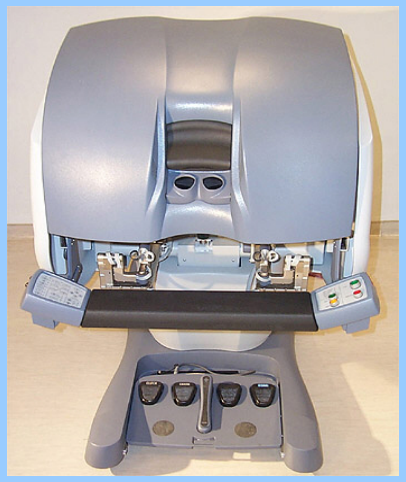
Programming by Demonstration in Medicine



Application

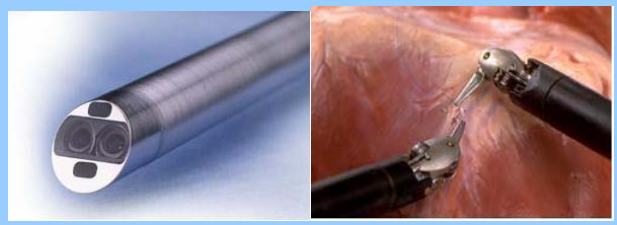
- DaVinci Surgical System

Console



Source: Intuitive Surgical

Manipulator

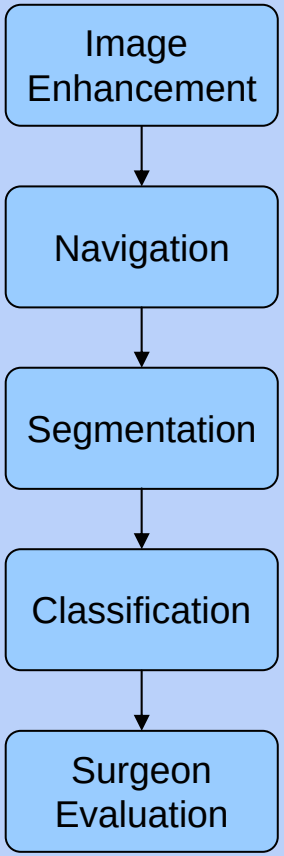


Source: Intuitive Surgical

Skill Acquisition

- Objective: Segmentation/Classification of Surgery Sequences

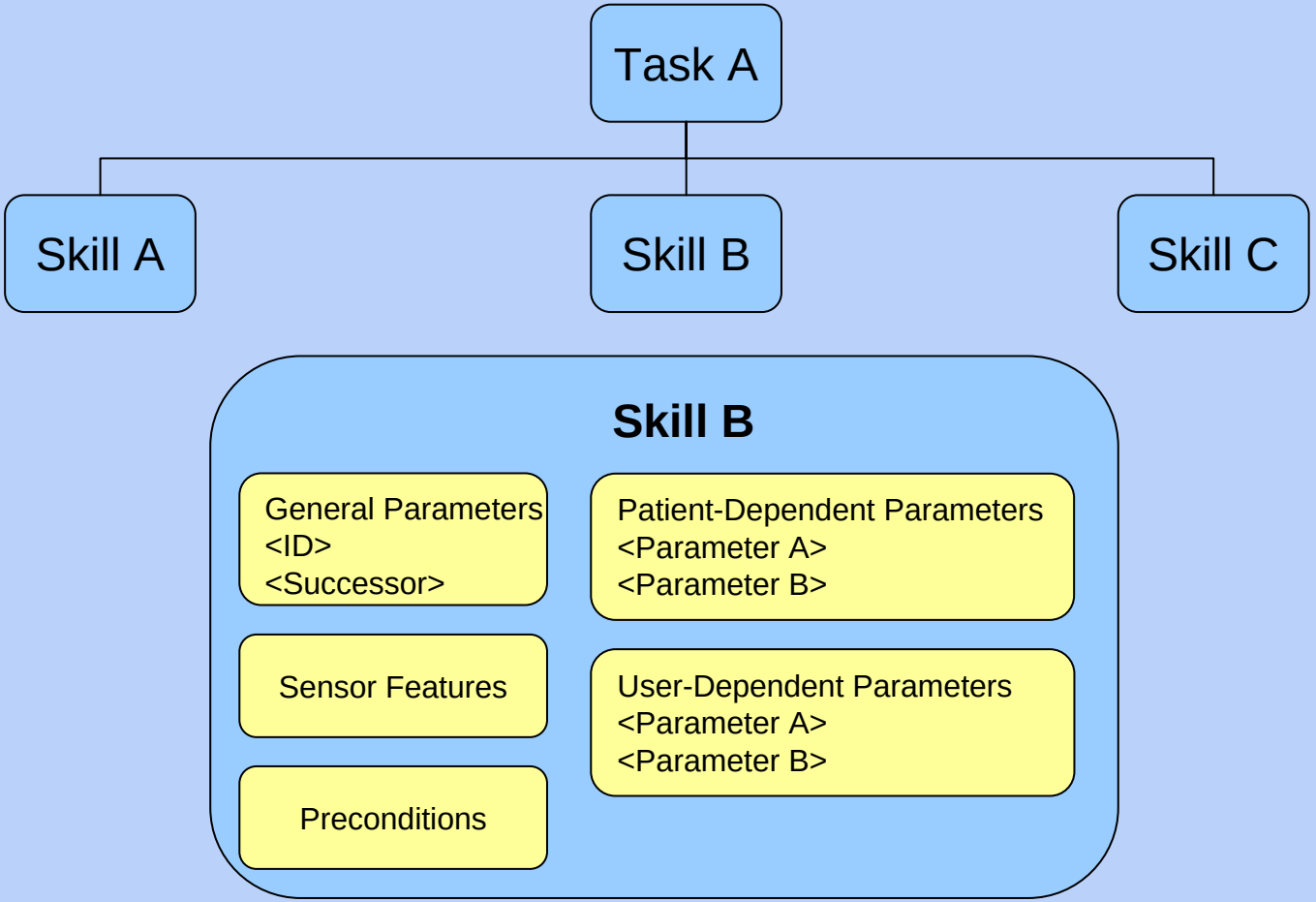
Sensors



Skill/Task

Skill Modeling

- Objective: Technical Presentation and Description of Surgical Tasks



Thank you for your attention !